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Social Identity and Environmental Concern: The Importance of Contextual Effects

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Abstract

This study draws on social identity theory to explain differences in individual support for environmental protection, a conative component of environmental concern. It argues that an individual's identification with higher social units—community, nation, and world—strengthens its in-group solidarity and empathy and, in consequence, its readiness to protect the environment benefiting the in-group's welfare. The study hypothesizes that country-level manifestations of social identity (a) lift individuals' support for environmental protection above the level that their own social identity suggests (elevator effect) and (b) reinforce the effect of individuals' social identity on their support for environmental protection (amplifier effect). Using a sample of more than 30,000 individuals located in 38 countries around the world, the study finds strong evidence for the two contextual effects. The findings indicate that social identity plays an important role not just as an individual attribute but also as a central component of culture in fostering environmental concern.

Keywords

environmental concern, environmental protection, willingness to pay, social identity, cross-country analysis

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Introduction

Worsening environmental problems, such as pollution and the overexploitation of natural resources, have raised questions about what motivates individuals to protect the environment. There is considerable debate in the social sciences over the factors of environmental concern, which can be defined as the awareness or insight of individuals that the environment deserves protection, and the willingness of individuals to protect the environment (Dunlap & Mertig, 1995; Dunlap & York, 2008; Givens & Jorgenson, 2011, 2013; Goksen, Adaman, & Zenginobuz, 2002; Hershfield, Bang, & Weber, 2014; Inglehart, 1995; Jorgenson & Givens, 2014; Knight & Messer, 2012; Nawrotzki, 2012). This discourse on predictors of environmental concern has been strongly dominated by Inglehart's (1995) postmaterialism hypothesis and Franzen's (2003, 2004) prosperity hypothesis, both of which promote the idea that environmental concern is an outcome of affluence. However, previous research has repeatedly found contradictory results at the country level (Dunlap & Mertig, 1995; Dunlap & York, 2008; Fairbrother, 2013; Givens & Jorgenson, 2011, 2013; Jorgenson & Givens, 2014). In sum, the question of why the levels of environmental concern differ across countries remains unresolved.

This study seeks to contribute to a better understanding of differences in individual support for environmental protection, a conative component of environmental concern. Drawing on social identity theory, this study argues that an individual's identification with a higher social unit strengthens individual group attitudes and cohesion, group empathy and solidarity, and, in consequence, the willingness to make economic sacrifices to protect the environment in the interest of the group's welfare. Based on this insight, this study hypothesizes that a country's *social prevalence* of social identity is key to understanding differences in environmental concern. Accordingly, this study takes social identity into account not only as an individual attribute but rather as a central contextual element that generates the mental "climate" that encourages individuals to support environmental protection. Two contextual effects are proposed: (a) an elevator effect that is present when country-level manifestations of social identity enhance individual-level support for environmental protection; even individuals who identify themselves with higher social units to a lower extent are then more willing to protect the environment when they live in countries in which social identity is more prevalent; and (b) an amplifier effect that is present when country-level manifestations of social identity strengthen the impact of people's own social identity on support for environmental protection. As a matter of social congruence, individuals who are willing to protect the environment are even more motivated to protect the

environment when their surrounding supports, appreciates, and practices environmental protection.

To test the elevator and amplifier effects as part of a broader social identity hypothesis, this study applies multilevel modeling to World Values Survey (WVS) data of more than 30,000 individuals located in 38 countries. The article is structured as follows: First, it begins with a discussion of the leading theories that have been used to explain environmental concern. Next, the social identity hypothesis is introduced to point out why and how social identity plays a significant role in the context of environmental concern. That is followed by a description of the methodology and a presentation of the research findings. The study concludes with a discussion of the main results.

Literature Review

Environmental concern refers, as Dunlap and Jones (2002) point out, "to the degree to which people are aware of problems regarding the environment and support efforts to solve them and/or indicate a willingness to contribute personally to their solution" (p. 484). Environmental concern, thus, involves a cognitive (understanding that the environment is damaged) and a conative (willingness to protect the environment) component.

Research in environmental concern that seeks to explain country-level variation in giving priority to the environment has been highly influenced by the idea that environmental concern is an outcome of affluence. According to Inglehart's (1977, 1995, 1997) theory of postmaterialist values, environmental concern is a consequence of the reduction of poverty that comes along with a successful economic development process. Based on the socialization hypothesis, Inglehart argues that individuals shift their materialist values to postmaterialist values once they experience conditions free of material and physical insecurities. Drawing on Maslow's hierarchy of human needs, he explains that lower-ordered needs, such as economic security, must be fulfilled before higher-ordered needs, such as quality of life (which includes an intact environment), can emerge (Inglehart, 1995, 1997; Inglehart & Welzel, 2005; Welzel, 2013). Since lower-ordered basic needs are better met in affluent economies, environmental concern is, thus, related to higher levels of economic development. Accordingly, in countries where postmaterialism is stronger, environmental concern should be more prevalent.

In addition to Inglehart, Franzen introduces another argument that explains why environmental concern is positively related to affluence. He shows that the level of wealth is positively associated with environmental concern, but that the effect of wealth is not necessarily dependent on a change of materialist values to postmaterialist values (Diekmann & Franzen, 1999; Franzen, 2003;

Franzen & Meyer, 2010). Against this background, Franzen (2003) introduced the prosperity hypothesis into the debate. He uses an economic framework to argue that environmental concern and wealth are directly linked to each other, since individuals

> in wealthier nations not only have a higher demand for a clean environment, but they also have less pressing economic problems and are therefore more willing and able to reduce their standard of living in order to devote more resources to global environmental protection. (Franzen, 2003, p. 299)

Thus, while Inglehart hypothesizes that environmental concern is a result of value changes that stem from socialization processes in developed countries, Franzen argues that individuals can remain materialists and still give priority to the environment.

The higher levels of Green Party preferences, environmental movement activities, environmental consumption, and environmental business activities in developed countries lend support to the view that environmental concern is positively associated with affluence (Dunlap & York, 2008; Hörisch, Kollat, & Brieger, 2017; Inglehart, 1995; Welzel, 2013). However, even if there is an agreement that the positive relationship between postmaterialism, or wealth, and environmental concern holds for the individual level, previous research could not find consistent positive relationships between postmaterialism values, or wealth, and environmental concern at the country level. In fact, several studies present empirical evidence that environmental concern is actually lower in more developed countries, depending on how environmental concern is measured, or that environmental concern is neither positively nor negatively related to the level of a country's wealth or postmaterialism values (Dunlap, Gallup, & Gallup, 1993; Dunlap & Mertig, 1995, 1997; Dunlap & York, 2008; Fairbrother, 2013; Gelissen, 2007; Givens & Jorgenson, 2011; Knight & Messer, 2012). In consequence, several authors reject the argument that affluence leads to higher levels of expressed concern for the environment, suggesting instead that environmental concern is a global phenomenon and widespread across developed and less developed countries (e.g., Dunlap et al., 1993; Dunlap & York, 2008; Knight & Messer, 2012).

In response to the evidence that contradicts the postmaterialism hypothesis, Inglehart (1995) develops the "objective problems subjective values" hypothesis, and argues that more developed countries are environmentally oriented since they have larger shares of postmaterialists, while individuals from poorer countries give priority to environmental protection because they are more frequently confronted with pressing environmental problems such as air or water pollution (Brechin, 1999; Franzen, 2003; Inglehart, 1995).

However, the empirical evidence is not coherent and, thus, could not confirm Inglehart's suggestion (e.g., Fairbrother, 2013; Givens & Jorgenson, 2011; Jorgenson & Givens, 2014).

In summary, it is still an unresolved question as to which predictors influence the differences in environmental concern among countries. In consequence, scholars call for further studies that discuss the macro context for environmental concern. Recently, Givens and Jorgenson presented new insights. In a first study, Givens and Jorgenson (2013) draw on world polity theory to argue that a country's integration in world polity, measured by the relative presence of environmental international nongovernmental organizations and the existence of environmental ministries, increases the likelihood of individuals expressing concern for the environment. But this finding can also be linked to the idea of an affluence–environmental concern relationship, since we know from the literature that in more developed countries, where postmaterialist values are more widespread in the population, individuals tend more frequently to engage in social movement activities (cf. Inglehart & Welzel, 2005; Welzel, 2013). In a later study, Jorgenson and Givens (2014) investigate the impact of a country's embeddedness in economic globalization on environmental concern. They show that the likelihood of individuals expressing environmental concern is negatively related to exports as the percentage of total gross domestic product (GDP), whereas it is positively associated with the percent of exports to high-income countries.

In addition to studies focusing on country-level predictors, previous research investigates a number of further individual-level factors of environmental concern. Sociodemographic variables, such as sex, age, education, social class, and income, have been found to be important factors. Typically, women report higher levels of environmental concern, attitudes, and behaviors than do men, which has been explained by women's stronger care and altruistic orientation and men's stronger focus on employment and economic growth (Dietz, Stern, & Guagnano, 1998; Nawrotzki, 2012; Scannell & Gifford, 2013; Stern, Dietz, & Kalof, 1993). Higher age has often been linked with lower concern for the environment, which is typically explained not by an age effect but rather a cohort effect (Franzen, 2004; Nawrotzki, 2012; Nawrotzki & Pampel, 2013). Drawing on Mannheim's theory of generations, several authors explain cohort differences by events and experiences during young childhood and crucial adolescence (Inglehart, 1977, 1997; Inglehart & Welzel, 2005; Van Liere & Dunlap, 1980). Higher education has usually been related to stronger environmental concern. Since more highly educated people are probably better able to understand and collect information toward the importance of the environment, they show greater commitment to the protection of the environment (Franzen & Meyer, 2010; Gifford & Nilsson, 2014;

Samdahl & Robertson, 1989; Van Liere & Dunlap, 1980). Several studies have also observed that social class and income are positively correlated with concern for the environment (Fairbrother, 2013; Franzen & Meyer, 2010; Givens & Jorgenson, 2013; Samdahl & Robertson, 1989; Sulemana, James, & Valdivia, 2016). This can be explained by the higher fulfillment of basic needs when people belong to the upper class of society and receive higher incomes. In line with Inglehart's and Franzen's thoughts, this assumption rests on the idea that environmental quality is somewhat of a luxury good, which only gains interest after basic material needs are fulfilled. However, other studies also suggest that lower social classes have higher levels of environmental concern, which contradicts this supposition (e.g., Guha & Martinez-Alier, 1997).

A Social Identity Hypothesis of Environmental Concern

An individual's self-concept consists of two distinct dimensions: The first one is personal identity, which includes specific individual attributes such as talents, specialization, and character traits (Luhtanen & Crocker, 1992). The second one is social identity, which Tajfel (1981) defines as "that part of an individual's self-concept which derives from knowledge of his membership of a social group together with the value and emotional significance attached to that membership" (p. 255). Human basic needs theories suggest that individuals search for a sense of belonging, relatedness, group identity, and identification (Maslow, 1954; Meynhardt, 2009). The perception of belonging to a social group—that is, when two or more individuals define and categorize themselves as part of it—fulfills the basic need for bonding and, thus, plays an important role in an individual's self-concept (Stets & Burke, 2000). Accordingly, social identity allows individuals to satisfy their psychological need for self-categorization to a collective.

As Buchan et al. (2011) point out, through self-categorization, individuals attach

> their sense of self to their group membership, [and] they see themselves as interchangeable components of a larger social unit. As a result of this redefinition of the self, pursuing the group's interest and maintaining concern with the group's welfare become a direct expression of self-interest; that is, collective and personal interest are interchangeable. (p. 822)

Individuals who have a social identity feel more comfortable with their in-group members, they are more similar to their in-group members, and they

see and evaluate things from their in-group's perspective (Stets & Burke, 2000). Individuals also judge in-group members as more likable, knowledgeable, and trustworthy (Fielding & Hornsey, 2016). The perception of being a member of a social group motivates individuals to behave in a way that improves their group's living conditions. The sense of belonging to a higher social unit strengthens individuals' group attitudes and cohesion, group empathy and solidarity, and willingness to engage in actions benefiting the group's welfare and interests (Brewer & Kramer, 1986; Reese, 2016; Reese, Proch, & Finn, 2015; Wit & Kerr, 2002). Specifically, the level of cooperation is significantly higher when social identity is more salient, and group members identify themselves more strongly with the social group (Buchan et al., 2011).

Based on the insight that social identity plays a substantial role in individuals' motivation to serve the welfare of the social groups to which they belong, this study hypothesizes that an individual's perception of being a member of a higher social unit also affects the preference for a healthy and pleasant environment for the members of the respective collective. Good environmental conditions (e.g., the absence of air pollution, deforestation, biodiversity loss, dirty water) directly improve the group members' health and well-being. Healthy ecosystems, biodiversity, and other favorable environmental conditions also tend to mitigate the adverse impact of natural disasters, such as earthquakes, tsunamis, hurricanes, and tornadoes (European Commission, 2014; Welsch, 2006), and in this sense, they also can have an indirect positive effect on the collective's well-being. Consequently, individuals should favor an intact environment for the benefit of the social groups they belong to. In other words, the degree to which individuals think of themselves as part of a higher social unit affects their sense of environmental justice. Individuals with strong social identity favor that each group member enjoys the same degree of protection from environmental problems and equal access to a healthy and intact environment. Thus, strong social identity corresponds with the preference to protect the environment (Fielding & Hornsey, 2016; Fritsche et al., 2017).

In fact, recent research presents first empirical evidence for a positive social identity–environmental concern linkage. For example, it has been found that people's social identification with organic consumers is positively associated with the willingness to purchase environmental products (Bartels & Onwezen, 2014) and environmental group membership and a stronger self-identity as an environmental activist are positively related to the intention to engage in environmental activism (Fielding, McDonald, & Louis, 2008). Research has also shown that the identification with the world evokes solidarity beyond borders and the willingness to contribute to the global common

good. Individuals identifying themselves with the world are more likely to buy Fairtrade over conventional products and show more environmental activism (Reese & Kohlmann, 2015; Renger & Reese, 2017). Running (2013) also finds evidence for a positive relationship between an individual-level global social identity and the cognitive component (understanding that the environment is damaged) of environmental concern. She notes that individuals who identify themselves as world citizens consider global warming to be a severe problem.

This study seeks to expand the current understanding of the social identity–environmental concern nexus by arguing that the effect of social identity on environmental concern unfolds its power not primarily as an individual attribute—as recent research has shown—but rather as a central element of culture. A country's prevalence of social identity forms the mental "climate" that encourages individuals to support environmental protection. Noteworthy is that this contextual effect exists fully independent of the individuals' personal social identity: The country-level manifestations of social identity elevate people's environmental concern above the level that their own individual social identity (and other individual characteristics) suggests. The social prevalence of social identity, thus, evokes an elevator effect on environmental concern: People in countries where social identity is more prevalent report higher levels of environmental concern.

That people's level of environmental concern is influenced by the prevalence of social identification in a given country can be explained in two regards: First, in a society with strong group bonding, individuals perceive and evaluate common interests as personal interests. Accordingly, they are sensitive to the welfare of the social groups they belong to and are, thus, willing to protect the environment in the interest of those social groups. Second, not only is it in their own interest to become an advocate for group interests and welfare, but it is also a duty to act as one in societies that are characterized by the prevalence of strong social identity. Societies influence, motivate, and also sanction certain types of attitudes, intentions, and behaviors of their members. Country-level manifestations of social identity are, thus, an important cultural element that sets the rules for what is morally right and wrong. If group belonging and, as a consequence of it, group empathy and solidarity are the norm, it evokes pressure on its members to be willing to protect the environment in the group's interest. That is why an individual not only wants to protect the environment but also feels compelled to do so. The influence of the prevalence of social identity on individual-level environmental concern, thus, integrates a dichotomy—namely, the internal and the external motivation to protect the environment in the interest of the respective higher social unit.

In addition, the prevalence of social identity should not only elevate but also amplify individuals' environmental concern. An amplifier effect is present when the effect of individuals' personal social identity on environmental concern is enhanced by the social prevalence of group identification. The social identity literature emphasizes that the level of cooperation is significantly higher when social identity is more salient and group members identify themselves more strongly with the social group (Buchan et al., 2011). To identify with a social group, individuals need to perceive being intertwined with the social group's habitus (Ashforth & Mael, 1989). A strong identification with one's social group should then be present when an individual's personal characteristics are in congruence with the motives, interests, and goals that define the social group's archetype (Terry, Hogg, & White, 1999). Accordingly, the prevalence of social identity reinforces the effect of individual-level social identity on the willingness to protect the environment.

In conclusion, this study investigates two contextual effects of social identity: (a) an elevator effect that raises individuals' willingness to protect the environment above the level that their own social identity suggests, and (b) an amplifier effect that reinforces the effect of individuals' social identity on their willingness to protect the environment.

Method

Data

To examine whether belonging to a higher social unit impacts environmental concern, this study used data from the WVS. The WVS is a global network of social scientists who survey the role of values in social and political life. Since 1981, the WVS has conducted nationally representative surveys in almost 100 countries that contain almost 90% of the world's population. In each country, at least 1,000 individuals have been interviewed through a common questionnaire. For this analysis, the fifth wave (2005-2008) of the WVS (which includes items measuring environmental concern and social identity) has been utilized. The final sample comprises 32,777 individuals located in 38 countries. The countries represent all global regions ranging from less developed to highly developed countries. In addition to the WVS data, country-level variables are taken from the World Bank and World Economic Forum databases.

Dependent Variable

Environmental concern, the main dependent variable, is measured by the respondent's willingness to make economic sacrifices for environmental

protection. To measure environmental concern, the responses to the following two questions of the WVS are used: "I would give part of my income if I were certain that the money would be used to prevent environmental pollution," and "I would agree to an increase in taxes if the extra money were used to prevent environmental pollution." The answers to both questions are rescaled according to the individual's readiness to give up wealth to protect the environment into 1 for *strongly disagree*, 2 for *disagree*, 3 for *rather agree*, and 4 for *strongly agree*. Since both variables are highly correlated and have a Cronbach's alpha of .79, the average score over the two items for each respondent is used. This procedure led to a finer seven-point index, yielding fractions from 1 to 4.

Independent Variable

Individuals can identify and categorize themselves on various levels of inclusion, ranging from a continuum of a low-inclusive level, represented by small groups (e.g., being a member of a partnership, friendship, family, work unit, sport team, or community) in which individuals know each other, to a high-inclusive level that is more impersonal, and comprises the world and, thus, all human beings (Reese et al., 2015).

The fifth wave of the WVS includes three items measuring individuals' social identity. The respondents should offer their view on whether they perceive themselves as a member of their community, nation, and world. Respondents can either strongly agree, agree, disagree, or strongly disagree with the statements, "I see myself as a world citizen," "I see myself as part of my local community," and "I see myself as a part of the [respective] nation." The three items are coded in ascending order of support, assigning scores of 1 for *strongly disagree*, 2 for *disagree*, 3 for *agree*, and 4 for *strongly agree*. The three social identity categories are labeled as "World identity," "Communal identity," and "National identity." Furthermore, to investigate the combined effect of the three social identity categories, an average score over the three categories is used.

Control Variables

Based on the literature review on environmental concern, several individual- and country-level determinants of environmental concern are considered. At the individual level, it has been controlled for sociodemographic characteristics, postmaterialism, and left-leaning political ideology. Sociodemographic controls comprised sex, age, education, income, and social class. *Sex* was measured by a dummy variable (0 = *male*, 1 = *female*). *Age* was a continuous

variable with each respondent giving his or her exact age. In an unreported analysis, the author transformed age into an ordinal variable with seven groups, which results in substantively comparable results. *Education* was measured by the highest educational level the respondent has attained. The variable consists of nine groups, ranging from 1 "no formal education" to 9 "university-level education, with degree." *Income* was measured by an individual's household income. The respondents provided a subjective rating of their household income on a 10-point scale ranging from 1 for "lowest decile" to 10 for "highest decile." *Social class* was measured by the respondent's self-description as a member of a respective social class. The variable consists of five groups, ranging from 1 "lower class" to 5 "upper class." *Left political ideology* was measured by a 10-point scale, ranging from 1 representing the most right-wing political views to 10 representing the most left-wing political views. *Postmaterialism* was based on Inglehart's established four-item postmaterialism index.

To investigate the relationship between postmaterialism and environmental concern at the country level, an average of postmaterialism for each country was calculated. To consider the "objective problems subjective values" hypothesis suggesting that individuals from poor countries are concerned for the environment due to objective environmental problems, the Environmental Performance Index (EPI) is used to measure a country's environmental quality. The data, which have been released by the World Economic Forum, are taken from 2006. This measure has been used in previous research (e.g., Knight & Messer, 2012). Moreover, it is controlled for GDP per capita in constant 2010 U.S. dollars. The data, which have been obtained from the World Development Indicators of the World Bank from year 2005, are logarithmized (ln) to normalize the positively skewed distribution (Jorgenson & Givens, 2014). In previous research, GDP per capita has been used as standard measure to examine the relevance of prosperity for environmental concern (Dunlap & York, 2008; Jorgenson & Givens, 2014).

Analysis

Previous studies have often used either individual-level data or country-level aggregations to investigate the drivers of environmental concern. This analysis takes both levels into account. In considering individual- and country-level data simultaneously, multilevel modeling is recommended to estimate regression coefficients and standard errors that are not biased (Snijders & Bosker, 2012). Multilevel modeling recognizes that individual data are nested within countries and estimates the variability in environmental concern within and between countries (Mikucka, 2014; Snijders & Bosker, 2012). In

the analysis, explanatory variables are fixed and not allowed to vary across countries. However, a random intercept was considered to control for the different means in environmental concern across countries. The model has been estimated by the "mixed" command in Stata 14. Recent research of environmental concern has used the same model estimation technique (e.g., Franzen & Meyer, 2010; Gelissen, 2007; Givens & Jorgenson, 2011, 2013; Jorgenson & Givens, 2014).

Results

Table 1 shows a descriptive overview of the variables considered in this study. The data set contains information from 32,777 individuals located in 38 countries. On average, more than 50% of the sample would make economic sacrifices to protect the environment. However, environmental concern varied significantly between countries. The highest levels of readiness to make economic sacrifices for environmental protection are found in Vietnam, Mali, and Burkina Faso. By contrast, people living in Germany, Hungary, Romania, and Morocco report the lowest support for environmental protection. The perception of belonging to a higher social unit is strongly pronounced even if variability between countries can also be identified. A large number of individuals perceive themselves as citizens of their community, nation, and world. The mean of national identity is slightly higher than the means of communal identity and world identity.

Table 2 displays a correlation matrix between the dependent, independent, and control variables. It provides first evidence that social identity plays a significant role in explaining environmental concern: There is bivariate evidence that people who perceive themselves as citizens of a community, nation, and world are more willing to make economic sacrifices to protect the environment. A relatively strong positive relationship was found for the relationship between environmental concern and the identification with the world and, thus, all humanity at the individual level. Also, high correlations among the social identity categories are found, which indicates their interrelationship. This finding implies that the social identity of individuals is composed of belonging to different social groups at different levels.

In Table 3, the findings of the multilevel regression models are presented. Before analyzing the models, a null model (or intercept-only model) for environmental concern is estimated to test whether multilevel modeling is needed. The computed intraclass correlation coefficient (ICC)—which estimates the percentage of total variance in environmental concern that exists between countries and is calculated by dividing the between-countries variance by the total variance—of .114 indicates that approximately 11% of the variance in

Table 1. Descriptive Statistics.

Variable	*M*	*SD*	Minimum	Maximum
Individual level (*N* = 32,777)				
1. Environmental concern	2.703	0.783	1	4
2. Sex (female)	0.488	0.500	0	1
3. Age	42.095	16.412	15	98
4. Education	5.518	2.396	1	9
5. Income	4.932	2.274	1	10
6. Social class	2.726	0.984	1	5
7. Postmaterialism	1.819	0.625	1	3
8. Left political ideology	5.198	2.366	1	10
9. Communal identity	3.035	0.814	1	4
10. National identity	3.509	0.604	1	4
11. World identity	3.038	0.812	1	4
Country level (*N* = 38)				
12. Postmaterialism	1.808	0.187	1.475	2.202
13. GDP per capita	8.884	1.665	5.452	11.391
14. Environmental quality	69.042	13.616	33.900	87.800
15. Communal identity	3.319	0.194	2.827	3.707
16. National identity	3.533	0.179	3.161	3.856
17. World identity	3.005	0.277	2.339	3.546

Notes. GDP per capita is logarithmized. GDP = gross domestic product.

individual-level environmental concern occurs between countries, which indicates that multilevel specification is reasonable. As a rule of thumb, ICC of .05, .10, and .15 are considered small, medium, and large, respectively (Hox, 2002).

Model 1 is the baseline model that only includes the control variables. The results of Model 1 show that sex ($\beta = 0.011$; *n.s.*) has no significant impact on expressed environmental concern, whereas age and environmental concern are positively and significantly associated ($\beta = 0.001$; $p < .01$). Individuals who have higher levels of education ($\beta = 0.026$; $p < .01$), income ($\beta = 0.014$; $p < .01$), and rank themselves as members of a higher social class ($\beta = 0.033$; $p < .01$) are more willing to give up money for environmental protection. Moreover, individuals who show stronger emphasis on postmaterialism values ($\beta = 0.092$; $p < .01$) and hold a left political ideology ($\beta = 0.011$; $p < .01$) express more concern for the environment. These relationships found at the individual level are stable across all of the estimated models.

Model 1 also includes relevant country-level predictors considered as controls, such as a country's GDP per capita, environmental quality, and

Table 2. Correlation Matrix.

Individual level (N = 32,777)	1	2	3	4	5	6	7	8	9	10
1. Environmental concern	1									
2. Sex (female)	−.012	1								
3. Age	**−.067**	**−.029**	1							
4. Education	**.044**	**−.024**	**−.**138	1						
5. Income	**.088**	**−.027**	**−.073**	**.309**	1					
6. Social class	**.062**	.002	**.017**	**.398**	**.465**	1				
7. Postmaterialism	**.076**	**−.019**	−.011	**.125**	**.074**	**.071**	1			
8. Left political ideology	**−.022**	**.040**	**.021**	**.042**	**−.079**	.005	**.066**	1		
9. Communal identity	**.113**	**−.018**	**.037**	**−.082**	**−.023**	**−.026**	**−.037**	**−.044**	1	
10. National identity	**.087**	**−.026**	**.031**	**−.035**	.004	**.015**	**−.057**	**−.054**	**.481**	1
11. World identity	**.228**	**−.017**	**−.100**	[redacted]	**.048**	**.039**	**.050**	**−.032**	**.316**	**.205**
Country level (N = 38)	12	13	14	15	16	17	18			
12. Postmaterialism	1									
13. GDP per capita	**.534**	1								
14. Environmental quality	**.456**	**.913**	1							
15. Communal identity	**−.**199	**−.523**	**−.548**	1						
16. National identity	**−.**175	**−.445**	**−.420**	**.740**	1					
17. World identity	.104	**−.**387	**−.455**	**.509**	**.272**	1				

Notes. Correlations $p < .01$ in bold type. GDP per capita is logarithmized. GDP = gross domestic product.

Table 3. Elevator Effects.

	Environmental concern (willingness to make economic sacrifices for environmental protection)								
Dependent variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Individual-level effects									
Sex (female)	0.011	0.011	0.011	0.012	0.012	0.011	0.011	0.012	0.012
Age/100	0.100***	0.069**	0.082***	0.118***	0.064**	0.066**	0.080***	0.114***	0.061**
Education	0.026***	0.026***	0.025***	0.023***	0.024***	0.026***	0.025***	0.023***	0.024***
Income	0.014***	0.015***	0.014***	0.015***	0.015***	0.015***	0.014***	0.015***	0.015***
Social class	0.033***	0.031***	0.032***	0.027***	0.027***	0.031***	0.031***	0.026***	0.027***
Postmaterialism	0.092***	0.094***	0.095***	0.085***	0.093***	0.094***	0.095***	0.085***	0.093***
Left political ideology	0.011***	0.011***	0.011***	0.010***	0.011***	0.011***	0.011***	0.010***	0.011***
Communal identity		0.077***				0.077***			
National identity			0.057***				0.057***		
World identity				0.137***				0.137***	
Combined identity					0.183***				0.183***
Country-level effects									
Postmaterialism	0.417*	0.358*	0.383*	0.019	0.141				
GDP per capita	−0.007	−0.004	−0.007	−0.000	−0.001				
Environmental quality	−0.008	−0.004	−0.008	−0.001	−0.002				
Communal identity		0.498**				0.845***			
National identity			0.312				0.694***		
World identity				0.525***				0.666***	
Combined identity					0.848***				1.101***
Intercept	2.531***	0.384	1.115	0.674*	−1.037	−0.914	−0.514	−0.241	−2.054***
Observations	32,777	32,777	32,777	32,777	32,777	32,777	32,777	32,777	32,777
Countries	38	38	38	38	38	38	38	38	38
−Log likelihood	35,947.53	35,867.05	35,912.97	35,588.52	35,685.44	35,872.13	35,920.41	35,593.82	35,687.63
LR test vs. linear model	2,782.69***	2,392.77***	2,550.86***	1,601.48***	1,689.42***	3,033.95***	3,559.49***	2,082.36***	1,922.66***

Notes. Combined identity = (Communal identity + National identity + World identity) / 3. GDP per capita is logarithmized. GDP = gross domestic product. LR test = Likelihood-ratio test.
*$p < .1$. **$p < .05$. ***$p < .01$.

prevalence of postmaterialism values. It includes, thus, the important predictors to test Franzen's prosperity hypothesis and Inglehart's "objective problems subjective values" hypothesis. The country-level controls GDP per capita ($\beta = -0.007$; $p > n.s.$) and environmental quality ($\beta = -0.008$; $p > n.s.$) show no significant associations with environmental concern. The effects of both variables are also nonsignificant in Models 2 through 5. A positive relationship could be found between postmaterialism and environmental concern, but it is only significant at the 10% level ($\beta = 0.417$; $p < .1$). The effect of postmaterialism on environmental concern is, however, nonsignificant in Models 4 and 5, thus confirming the mixed evidence found in previous research.

Models 2 to 5 are the full models that include the respective social identity variables at the individual and country level, as well as all individual- and country-level controls of Model 1. Models 6 to 9 are identical to Models 2 to 5, but they exclude the country-level controls. Overall, the results confirm the social identity hypothesis and, thus, lend support to the crucial role of social identity for individual-level environmental concern. At the individual level, individuals' perception of belonging to the community ($\beta = 0.077$; $p < .01$), nation ($\beta = 0.057$; $p < .01$), and world ($\beta = 0.137$; $p < .01$) are positively related to the readiness to make economic sacrifices for environmental protection. The estimated coefficients are highly significant. Interestingly, the effect of world identity is most powerful, showing the importance of individuals' belonging to all humanity for environmental concern.

At the country level, this study finds that the prevalence of communal, national, and world identity is positively associated with environmental concern. The results of Models 2 ($\beta = 0.498$; $p < .05$) and 6 ($\beta = 0.845$; $p < .01$) indicate that individuals tend to have higher levels of environmental concern in countries with stronger community identities. The effects are significant and powerful. Furthermore, Models 3 and 7 provide evidence that a country's prevalence of national identity elevates individual support for environmental protection. However, only a significant effect could be investigated in the model without country-level controls ($\beta = 0.694$; $p < .01$), while the effect is nonsignificant in the model that includes country-level control variables ($\beta = 0.312$; *n.s.*). As hypothesized, the results of Models 4 and 8 show that individuals report a higher readiness to give up money to protect the environment when they live in countries that are characterized by higher levels of world identity. The elevator effect of a country's prevalence of world identity on individual-level environmental concern could be found in both models, with ($\beta = 0.525$; $p < .01$) and without ($\beta = 0.666$; $p < .01$) country-level controls.

The results of Models 5 and 9 show the combined effect of the three social identity categories: community, nation, and world. Individuals who perceive

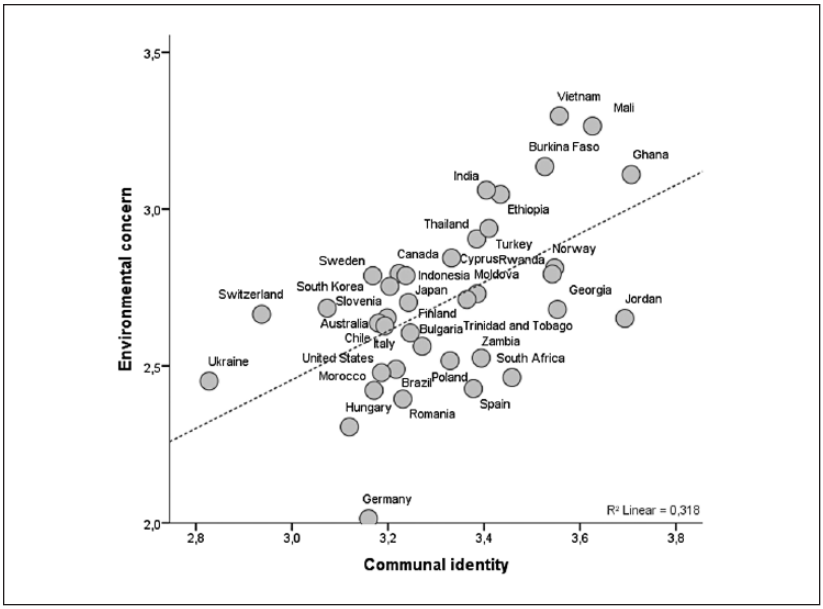

Figure 1. Environmental concern and communal identity.

themselves as citizens of their community, nation, and world, at the same time, are more willing to make economic sacrifices to protect the environment ($\beta = 0.183$; $p < .01$). In addition, evidence is found that a country's prevalence of combined identity elevates the individual's support for environmental protection. This holds true for both models with ($\beta = 0.848$; $p < .01$) and without ($\beta = 1.101$; $p < .01$) country-level controls. Taken together, the results indicate that the combined effects are stronger than the single social identity effects. To gain a better understanding of the nature of the significant effects, corresponding graphs have been plotted. Figures 1 through 4 visualize the elevator effects of the social identity categories on environmental concern.

In Table 4, Models 10 through 13 add the interaction terms between individuals' social identity and a country's prevalence of social identity. As hypothesized, an amplifier effect was found that enhances the effect of the individual's social identity on environmental concern. The results of Models 10 and 11 indicate that people strongly identifying themselves as members of their community or nation strongly are even more willing to protect the environment when they are embedded in a society that is characterized by a

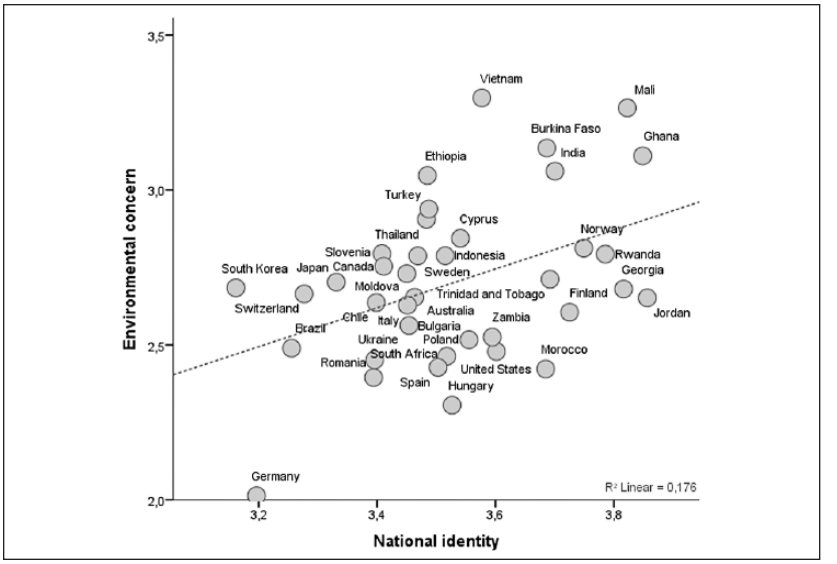

Figure 2. Environmental concern and national identity.

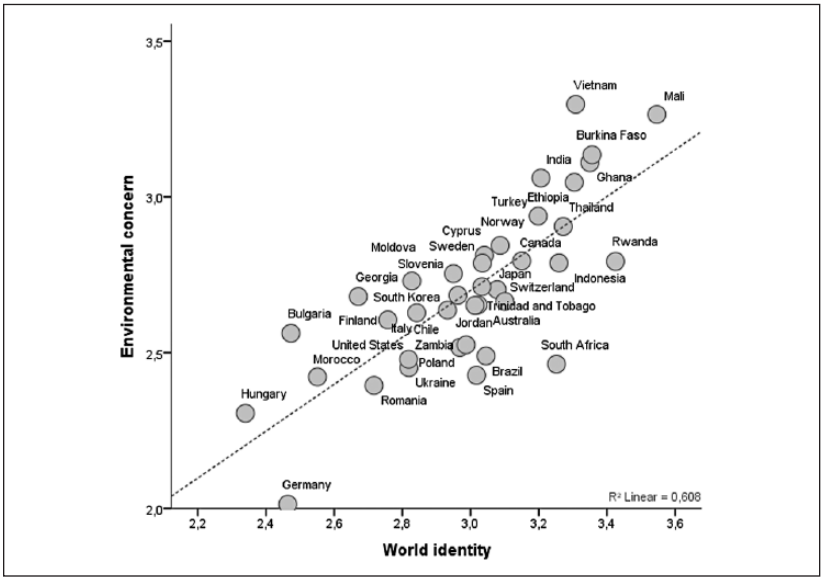

Figure 3. Environmental concern and world identity.

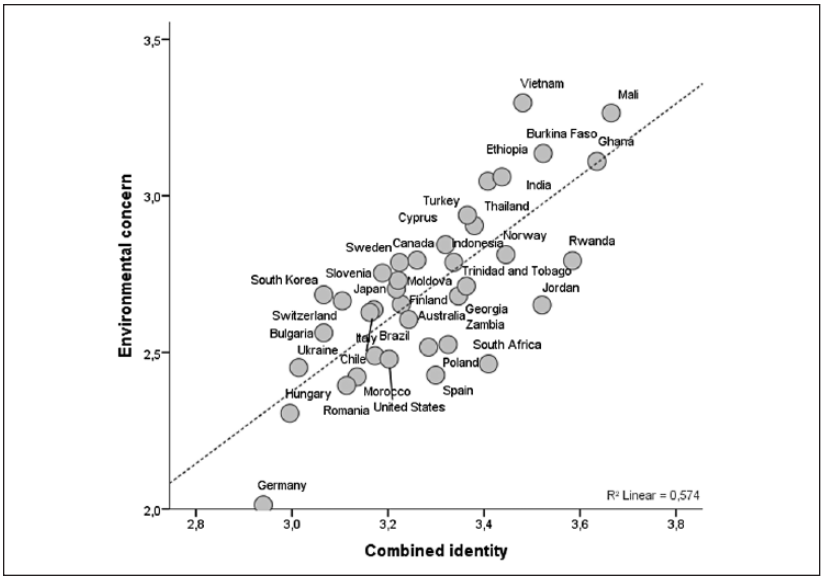

Figure 4. Environmental concern and combined identity.

Table 4. Amplifier Effects.

	Environmental concern (willingness to make economic sacrifices for environmental protection)			
Dependent variable	Model 10	Model 11	Model 12	Model 13
Interaction effects				
IL-Communal identity × CL-Communal identity	0.230***			
IL-National identity × CL-National identity		0.120***		
IL-World identity × CL-World identity			−0.012	
IL-Combined identity × CL-Combined identity				0.142***
Observations	32,777	32,777	32,777	32,777
Countries	38	38	38	38
−Log likelihood	35,843.24	35,908.97	35,588.30	35,680.90
LR test vs. linear model	2,357.21***	2,553.65***	1,601.90***	1,696.13***

Notes. Combined identity = (Communal identity + National identity + World identity) / 3. Full set of individual- and country-level controls included. IL = individual level; CL = country level. LR test = Likelihood-ratio test.
*p < .1. **p < .05. ***p < .01.

higher prevalence of communal identity ($\beta = 0.230$; $p < .01$) or national identity ($\beta = 0.120$; $p < .01$), respectively. In other words, the context moderates the relationship between communal identity or national identity and environmental concern.

Discussion and Conclusion

This study draws on social identity theory to explain differences in individual-level environmental concern. Based on the proposition that individuals' belonging to a higher social unit activates in-group cohesion and solidarity and, thus, motivates individuals to give up their own money to protect the environment to benefit the in-group to which they belong, this study argues that the country-level manifestations of social identity (a) lift individuals' support for environmental protection above the level that their own social identity suggests and (b) amplifies the effect of individuals' social identity on their support for environmental protection.

In all, the results confirm the social identity hypothesis by supporting the proposition of a positive relationship between individual-level social identity and environmental concern. Individuals who perceive themselves as citizens of their community, nation, and world are more willing to make economic sacrifices for environmental protection. It is worth mentioning that an individual's world identity shows the strongest effect on environmental concern. This finding might be explained by stronger altruistic values and higher moral ideals of those people with stronger identification with all humanity (cf. McFarland, Brown, & Webb, 2013). Maslow (1954) also emphasizes that self-actualized individuals show "a deep feeling of identification, sympathy, and affection for human beings in general" and a "feeling of identification with mankind" (p. 138).

Furthermore, this study presents strong cross-country empirical evidence for the two contextual effects of social identity on environmental concern: Individuals are more willing to protect the environment in countries with stronger communal, national, and world identities, thus confirming an elevator effect. Specifically, the differences in environmental concern among countries are best explained by a country's prevalence of communal and world identity. Furthermore, it has been found the combined effect of communal, national, and world identity is stronger than the single social identity effects, indicating that the social prevalence of group identification evokes its most profound impact on individuals' environmental concern in combination, namely, when a group belonging within a country is strongly pronounced at all three levels of inclusion: community, nation, and world.

Also, the study's results confirm the presence of an amplifier effect. It is found that the positive relationship between individuals' social identity and

environmental concern is reinforced by the social prevalence of group belonging. Individuals who feel strongly connected with their community and nation, and, thus, express concern for the environment, are even more willing to make economic sacrifices to protect the environment when they are surrounded by people who show the same strong group commitment and solidarity. It is noteworthy that only the social prevalence of communal and national community show positive amplifier effects. This can be explained by the stronger in-group pressure and boundaries of local communities and nations (Welzel, 2013).

In view of the results, the social identity hypothesis offers a more comprehensive understanding of why differences in individual-level environmental concern exist within, but rather more between, countries. The study contributes to the current literature in a threefold manner: First, while Franzen's prosperity hypothesis and Inglehart's "objective problems subjective values" hypothesis fail to explain differences in environmental concern among countries, this study provides convincing cross-country empirical evidence for the contextual effects of social identity on individuals' support for environmental protection. The results demonstrate that the level of an individual's support for environmental protection depends more on the contextual effect of social identity than on that of postmaterialism, wealth, or environmental quality. Thus, in terms of the competing hypothesis regarding country-level influences, this study also confirms the skepticism of some scholars toward Franzen's and Inglehart's approaches. Second, while recent studies have examined only the individual-level effects of social identity, this is the first study that discusses the contextual effects of social identity. That the contextual effects of social identity on environmental concern are, compared with the individual-level effects, much more powerful illustrates the importance of social identity as a contextual factor. Third, by examining the relationship between social identity and a conative component of environmental concern (willingness to protect the environment) as the dependent variable, this study complements previous research that has predominantly investigated the cognitive component (understanding that the environment is damaged) of environmental concern (Running, 2013). Thus, this study provides new insight into how social identity affects people's active willingness to protect the environment.

Although this study adds to the current literature on environmental concern by providing new and significant insights, the analysis is not without limitations. First, due to limited data availability, the study has a cross-sectional design that makes causal inferences difficult. Nevertheless, the results are consistent with the propositions raised in the context of the social identity hypothesis. Second, even if one strength is that the study draws on a rich cross-country

Table 5. Elevator Effects (Robustness Check).

	Environmental concern ("important to this person looking after environment; to care for nature")			
Dependent variable	Model 14	Model 15	Model 16	Model 17
Individual-level effects				
Community identity	0.212***			
National identity		0.207***		
World identity			0.180***	
Combined identity				0.366***
Country-level effects				
Community identity	0.846***			
National identity		0.859***		
World identity			0.123	
Combined identity				0.881**
Observations	32,094	32,094	32,094	32,094
Countries	37	37	37	37
−Log likelihood	49,206.36	48,962.66	49,020.92	48,964.40
LR test vs. linear model	2,688.45***	2,330.82***	2,257.45***	2,613.93***

Notes. Combined identity = (Community identity + National identity + World identity) / 3. Full set of individual- and country-level controls included. Response categories of the dependent variable range from 1 = "not at all like me" to 4 = "very much like me." LR test = Likelihood-ratio test.
*$p < .1$. **$p < .05$. ***$p < .01$.

dataset that enables it to apply multilevel modeling, the selection of countries reflected the availability of the WVS data set. Future research should try to consider data from a larger number of countries to obtain a more comprehensive picture of the linkages discussed in this study. Third, it should be noted that this study only uses a conative component of environmental concern (willingness to protect the environment) as the dependent variable. Previous research has shown that environmental concern has multidimensional aspects, which involves, for instance, also a cognitive component (understanding that the environment is damaged). The author of this study examined whether a country's prevalence of social identity can also explain between-country variances in people's recognition of global environmental problems (the full results are available from the author on request). However, significant relationships between a country's prevalence of communal, national, and world identity and this cognitive component of environmental concern were not found. Given the fact that group belonging evokes the active participation of people who want to benefit the group to which they belong, it is plausible that social identity more

Table 6. Amplifier Effects (Robustness Check).

	Environmental concern ("important to this person looking after environment; to care for nature")			
Dependent variable	Model 18	Model 19	Model 20	Model 21
Interaction effects				
IL-Communal identity × CL-Communal identity	0.207***			
IL-National identity × CL-National identity		0.206***		
IL-World identity × CL-World identity			0.098***	
IL-Combined identity × CL-Combined identity				0.163**
Observations	32,094	32,094	32,094	32,094
Countries	37	37	37	37
−Log likelihood	48,954.61	49,015.95	48,958.09	48,788.87
LR test vs. linear model	2,320.77***	2,259.04***	2,588.08***	2,263.08***

Notes. Combined identity = (Communal identity + National identity + World identity) / 3. Response categories of the dependent variable range from 1 = "not at all like me" to 4 = "very much like me." Full set of individual- and country-level controls included. IL = individual level; CL = country level. LR test = Likelihood-ratio test.
*$p < .1$. **$p < .05$. ***$p < .01$.

greatly affects willingness to protect the environment than the understanding of a damaged environment. Subsequently, there is less need for group identification to get an understanding that local or global environmental problems are serious. The robustness of the relationship between social identity and an active conative component of environmental concern could be evaluated by using an alternative environmental concern measure ("looking after the environment is important to this person; to care for nature")—which has been used in recent research (Givens & Jorgenson, 2011, 2013). The results in Tables 5 and 6 show the same general tendencies as presented in Table 3. At the individual level, individuals who perceive themselves as citizens of their community, nation, and world are more willing to look after the environment and to care for it. Moreover, the social prevalence of communal and national identity elevates individuals' looking after the environment and caring for nature (elevator effect). Furthermore, the social prevalence of communal, national, and world identity reinforces the effect of individuals' social identity on their willingness to care for the environment (amplifier effect). Thus, a conative component of

environmental concern seems to be a more appropriate measure to understand environmental outcomes of social identity.

Since this research confirms that identification with a higher collective corresponds with individual interests in equally distributed environmental benefits and costs, the critical issue is to learn how identification with higher social units develops. Since an understanding of the psychological and sociological processes behind social identity may help environmental policy making, the role of social identity as a unique predictor for environmental issues should be further investigated—not only in environmental sociology and environmental psychology but also in business ethics, sustainable entrepreneurship and management, and political science. The author hopes that this study will be a good starting point for further cross-country research in these areas.

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